

Title Lowering the moisture content of stored grain can gain extra time for cooling to prevent infestation: studies on the development, productivity and survival at two relative humidities of two insect species on whole wheat and artificial diet.

Authors Fleming, D. A. and Armitage, D. M.

Citation Advances in stored product protection. Proceedings of the 8th International Working Conference on Stored Product Protection, York, UK, 22-26 July 2002 (2003); 696-701

#### **Abstract**

Comparison of the development times of recently collected UK strains of the saw-toothed grain beetle, *Oryzaephilus surinamensis*, and the rust-red grain beetle, *Cryptolestes ferrugineus*, indicates that development was extended on whole wheat (cv. Mercia) grain compared with that on the usually employed laboratory diet. The reduction of the relative humidity (rh) from 70 to 50% (15-12% moisture content) substantially reduced the proportion of insects able to complete development on wheat, whereas rh had little effect when a laboratory diet was used. Only a slight variation was observed at 5 deg C between the survival of *O. surinamensis* on wheat or on artificial diet; however, at 10 deg C, *O. surinamensis* survived for a shorter time on whole grain. If temperatures below 10 deg C become difficult to achieve, moisture reductions may assist low temperature disinfestation. Productivity on a laboratory diet was enhanced by more than 10-fold compared with that on wheat, and while humidity had no effect on a laboratory diet, it effectively increased the lower temperature-breeding threshold on wheat.